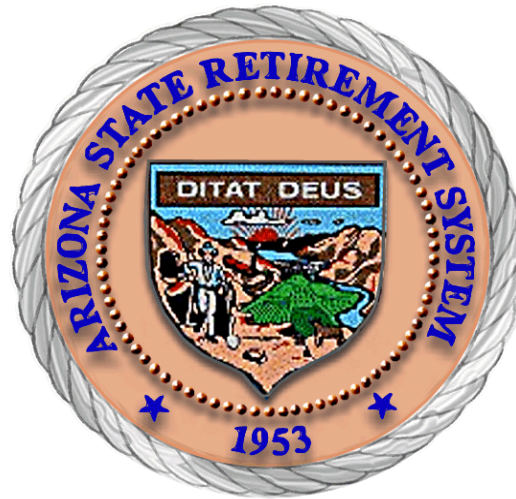


# Arizona State Retirement System



## Global Tactical Asset Allocation (GTAA)

Gary R. Dokes, Chief Investment Officer, ASRS  
Mike Lewis, Alternative Investment Research, Mercer

November 19, 2010

# Agenda

- Evolution of ASRS Tactical Asset Allocation Program
- ASRS Perspectives of GTAA
- ASRS GTAA Program Review (Aggregate)
- GTAA Manager(s) Reviews (Individual)
- GTAA Manager(s) Ratings/Assessment
- GTAA Market Environment Update

# Evolution of ASRS Tactical Asset Allocation Program

- The ASRS Tactical Asset Allocation program was initiated in 1984, migrating to a Global TAA strategy in 2003 with the hiring of Goldman Sachs and Bridgewater.
- In 2007, Goldman Sachs \$1.4 billion mandate was terminated due to organizational, investment process and volatility of return concerns.
- In 2008, a GTAA search for a Goldman Sachs replacement resulted in Deutsche Bank Advisors and Mellon Capital being hired.
- In 2009, the IC decided to rescind the approval for funding Mellon Capital's GTAA mandate due to concerns regarding performance and investment process.
- In 2010, Deutsche Bank announced the their GTAA team will set up an independent investment management boutique named QS Investors. After a thorough due diligence process, ASRS decided to retain QS Investors.

# ASRS Perspectives of GTAA

- ASRS favors a more traditional GTAA approach based on the following beliefs and expectations:
  - GTAA should provide the ASRS with a systematic framework for making macro-level tactical asset class investment decisions.
  - GTAA is viewed as an “alpha-generator” whose returns should primarily result from portfolio positioning in the economic beta asset classes in which the ASRS invests.
  - GTAA should require a demonstrated skill set in predicting the dispersion of longer-term asset class returns.
- ASRS disfavors traditional hedge fund-like structure GTAA products due in part to high fee structure and portfolio transparency issues.
- The purpose of the ASRS GTAA program is:
  - To allocate 10% +/- 2% of ASRS assets to alpha-generating strategies that provide diversification benefit relative to the ASRS Total Fund benchmark by making global tactical asset class investments.
  - The GTAA mandate has a passively managed Custom Benchmark, or “beta,” portion, which is made up of asset classes that are primarily part of the ASRS Total Fund benchmark, and an alpha portion, which is expected to add value in both rising and falling markets through portfolio positioning relative to the beta portion.

# **ASRS GTAA Asset Class (Aggregate)**

# ASRS GTAA – Asset Class Overview

- **Market Value: \$2.6 billion**

- Policy Target: 10% +/- 2%

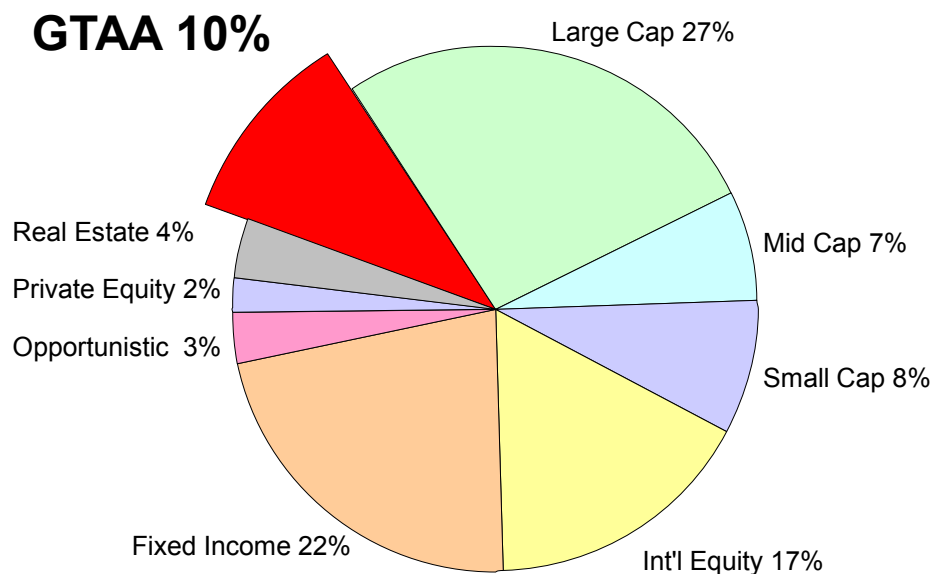
- **Investment Managers:**

- Bridgewater Associates
  - Inception: 12/31/2003
  - Portfolio: \$2.1 billion
- QS Investors (former DB)
  - Inception: 5/31/08
  - Portfolio: \$446 million

- **Benchmark:**

- 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

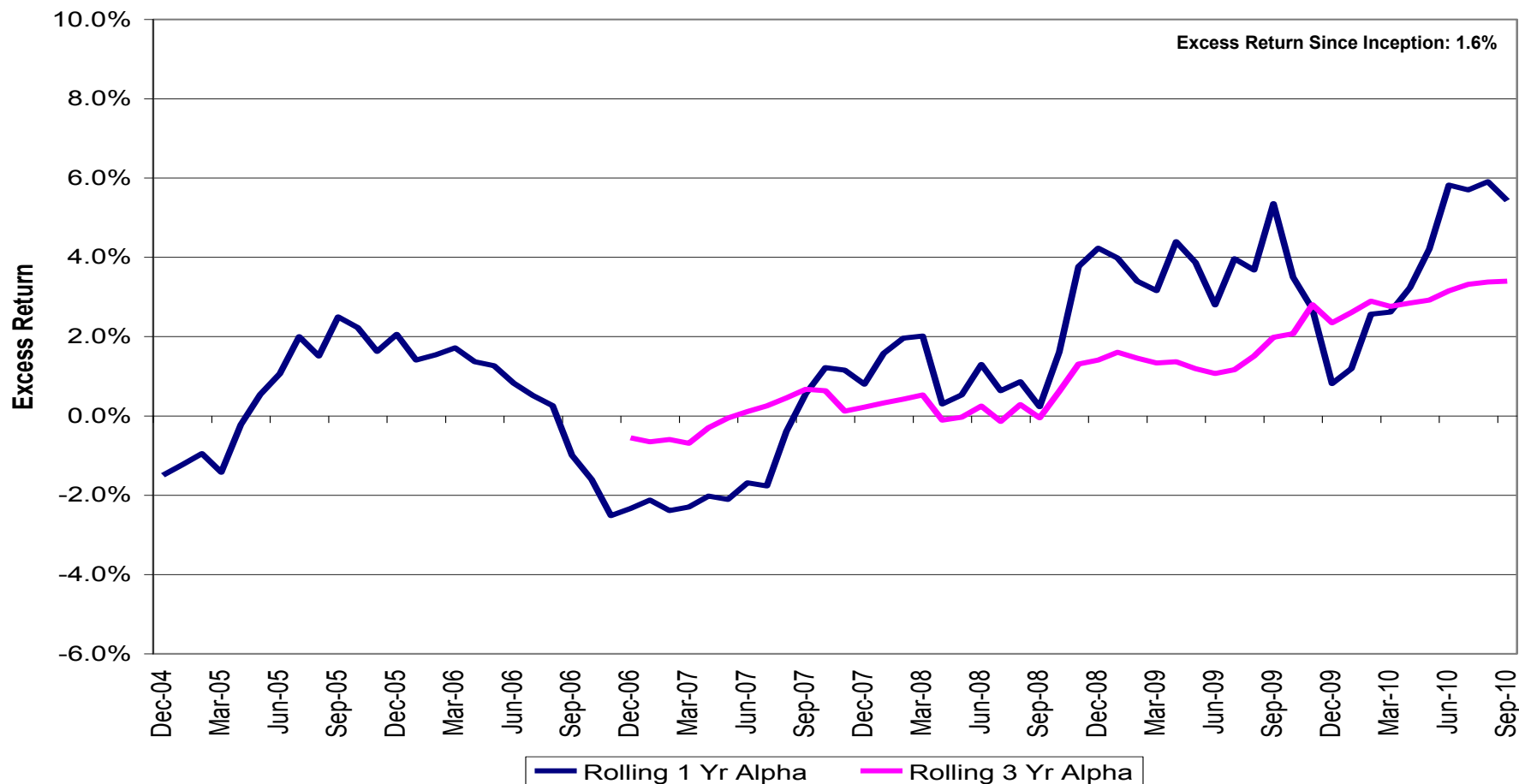
As of September 30, 2010



# ASRS Total GTAA – Excess Return

## GTAA Composite vs. GTAA Index<sup>1</sup>

Excess Returns Since Inception (December 31, 2003) – September 30, 2010

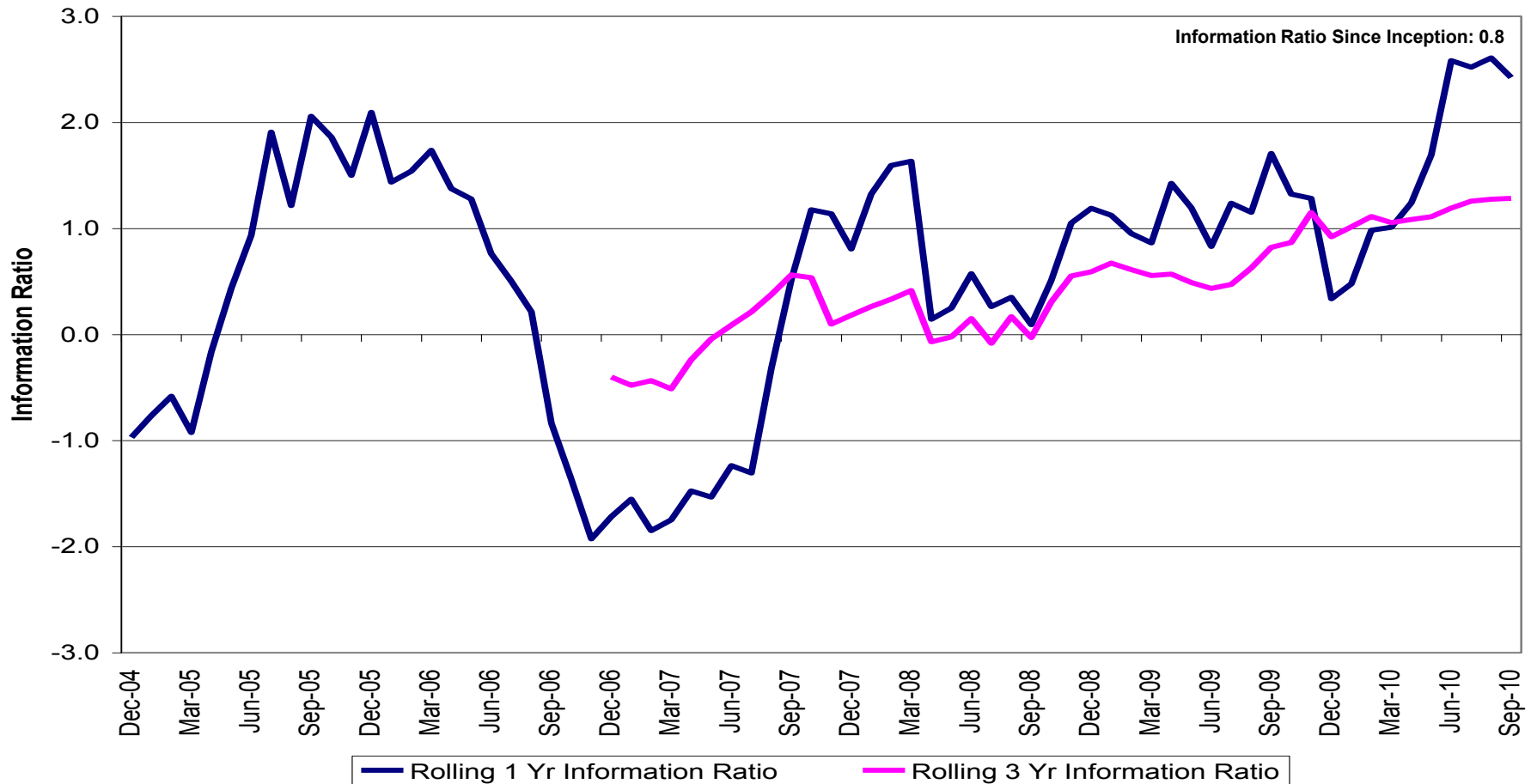


<sup>1</sup>ASRS GTAA Index comprised of 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

Note: Based on monthly, net of fee performance data.

# ASRS Total GTAA – Information Ratio

Rolling Information Ratio Since Inception (December 31, 2003) – September 30, 2010



Note: Based on monthly, net of fee performance data.

# ASRS GTAA – Performance

As of September 30, 2010	Market Value	Last Quarter	Year to-Date	One Year	Annualized Returns				Inception Date
					Three Years	Five Years	Ten Years	Since Inception	
<b>ASRS GTAA Composite</b>	<b>\$2,566,207,481</b>	<b>11.0%</b>	<b>9.8%</b>	<b>14.4%</b>	<b>0.3%</b>	<b>4.9%</b>	<b>n/a</b>	<b>5.7%</b>	<b>Dec-03</b>
<i>GTAA Custom Benchmark<sup>1</sup></i>		9.7%	5.0%	9.0%	-3.1%	2.8%	2.4%	4.2%	
<i>Performance Variance (Return - Benchmark)</i>		1.3%	4.8%	5.4%	3.4%	2.1%	n/a	1.6%	
<b>Bridgewater</b>	<b>\$2,120,697,266</b>	<b>11.7%</b>	<b>11.7%</b>	<b>16.4%</b>	<b>1.8%</b>	<b>5.7%</b>	<b>n/a</b>	<b>6.6%</b>	<b>Dec-03</b>
<i>GTAA Custom Benchmark<sup>1</sup></i>		9.7%	5.0%	9.0%	-3.1%	2.8%	2.4%	4.2%	
<i>Performance Variance (Return - Benchmark)</i>		2.0%	6.7%	7.3%	4.8%	2.9%	n/a	2.4%	
<b>QS Investors</b>	<b>\$445,510,215</b>	<b>7.6%</b>	<b>1.6%</b>	<b>6.1%</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>-4.7%</b>	<b>May-08</b>
<i>GTAA Custom Benchmark<sup>1</sup></i>		9.7%	5.0%	9.0%	-3.1%	2.8%	2.4%	-2.5%	
<i>Performance Variance (Return - Benchmark)</i>		-2.1%	-3.4%	-2.9%	n/a	n/a	n/a	-2.2%	

<sup>1</sup>56% S&P 500/16% MSCI EAFE/28% Barclays Capital Aggregate

Note: Manager performance is reported net of fees.

**Note: Preliminary performance calculated by State Street Investment Analytics and reviewed by NEPC.**

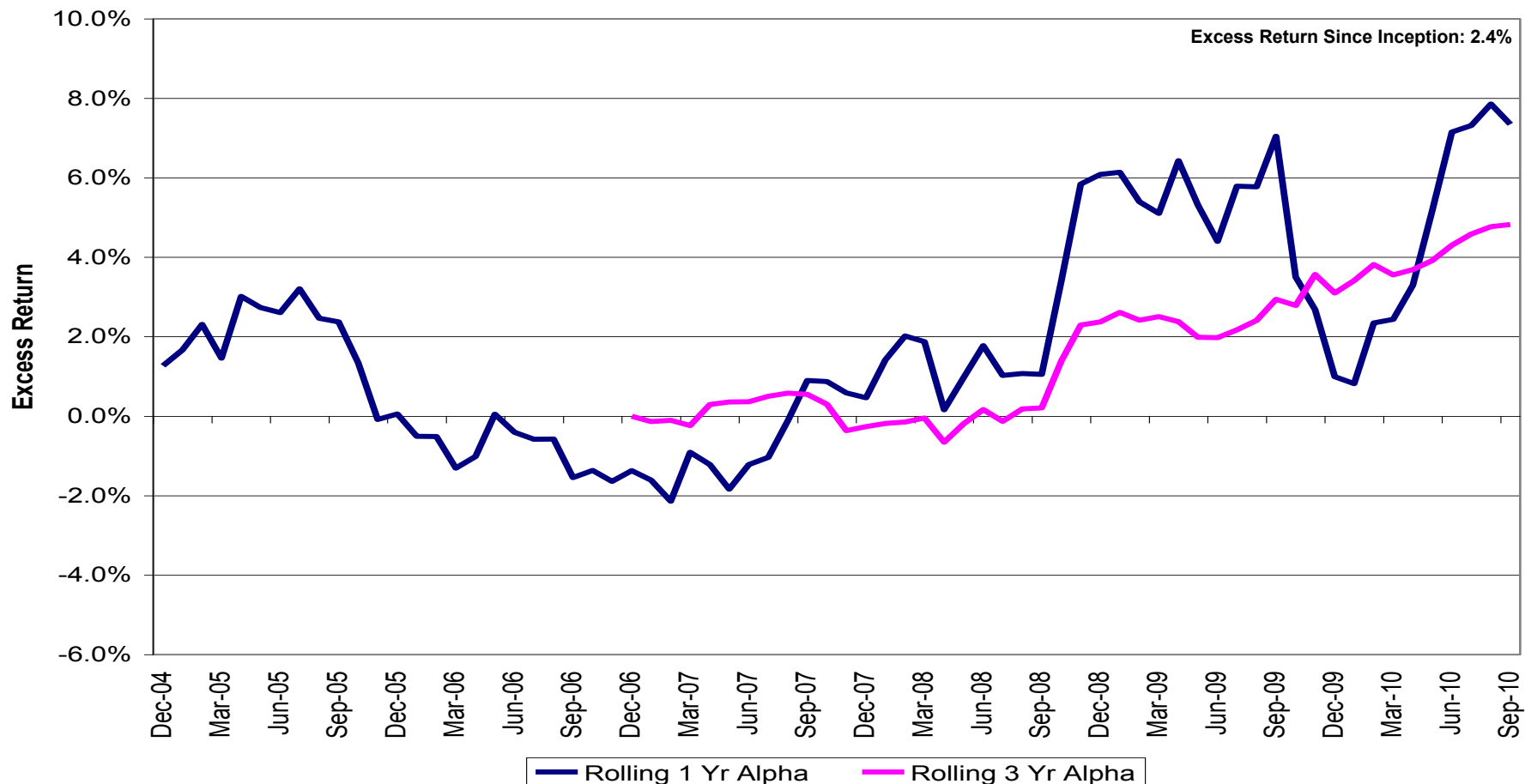
# **GTAA Manager Reviews (Individual)**

# Bridgewater – Portfolio Profile

Portfolio Size	\$2,121 Million
Expected Excess Return	3.00%
Expected Tracking Error (Active Risk)	3.75%
Expected Information Ratio	0.80
Fees	51bps
Portfolio Structure	Derivatives – 62% Physical Securities – 34% Bridgewater Corporate Bond Fund – 3% Bridgewater Equity Fund – 1%
Investment Process	Fundamental
Bridgewater believes that a deep understanding of the fundamental determinates of each country's interest rates, exchange rates, and equity markets is an essential prerequisite for adding value in global tactical asset allocation. Bridgewater also believes that a systematic process for quantifying this fundamental relationship and converting it into investment decisions is essential.	

# Bridgewater – Excess Return

**Bridgewater vs. ASRS GTAA Index<sup>1</sup>**  
**Excess Returns Since Inception (December 31, 2003) – September 30, 2010**

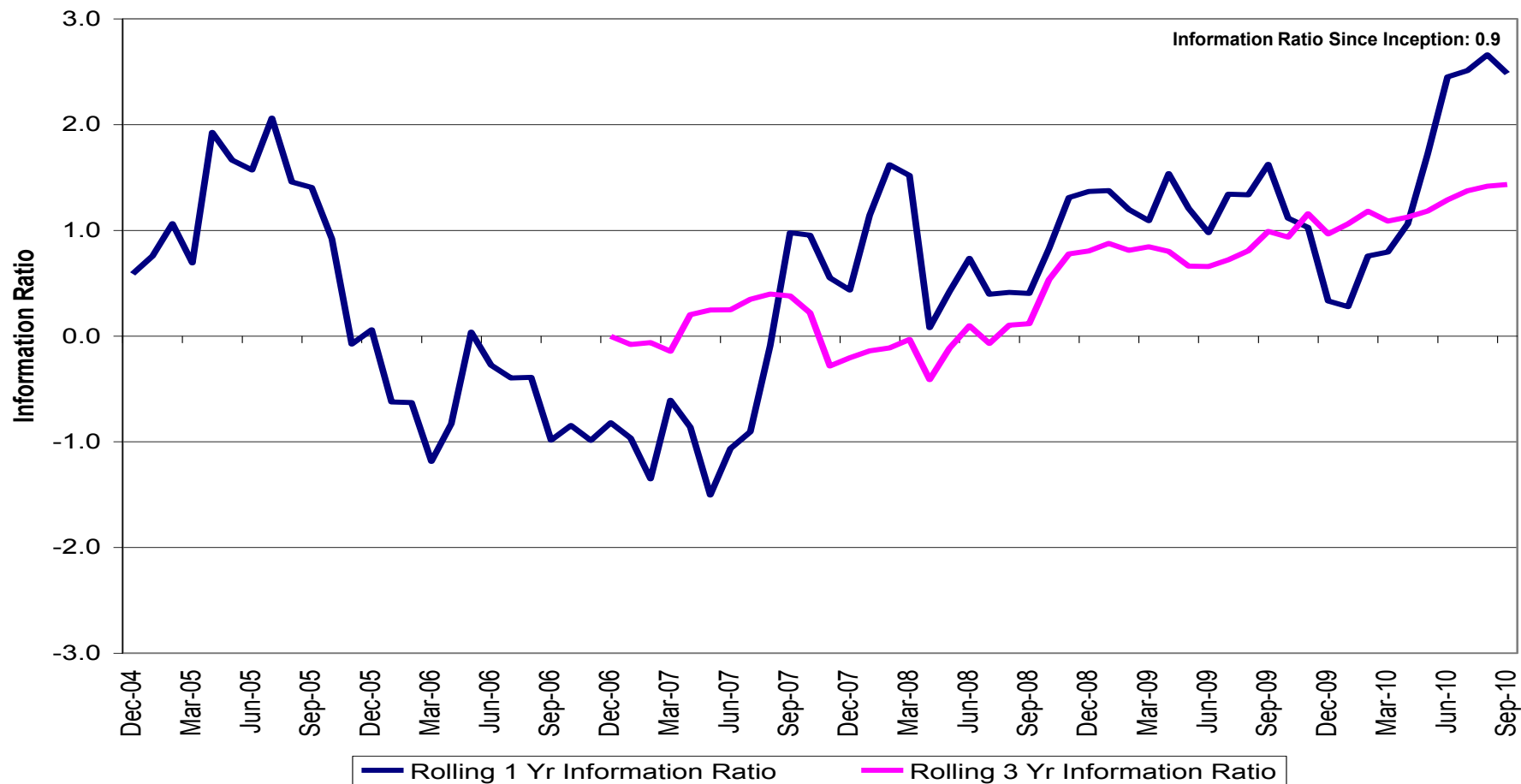


<sup>1</sup>ASRS GTAA Index comprised of 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

Note: Based on monthly, net of fee performance data.

# Bridgewater – Information Ratio

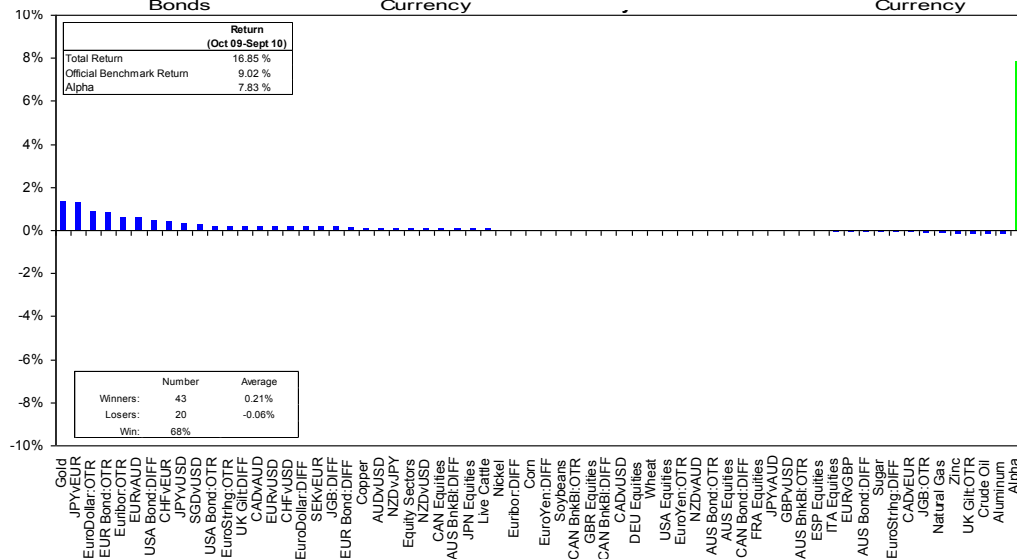
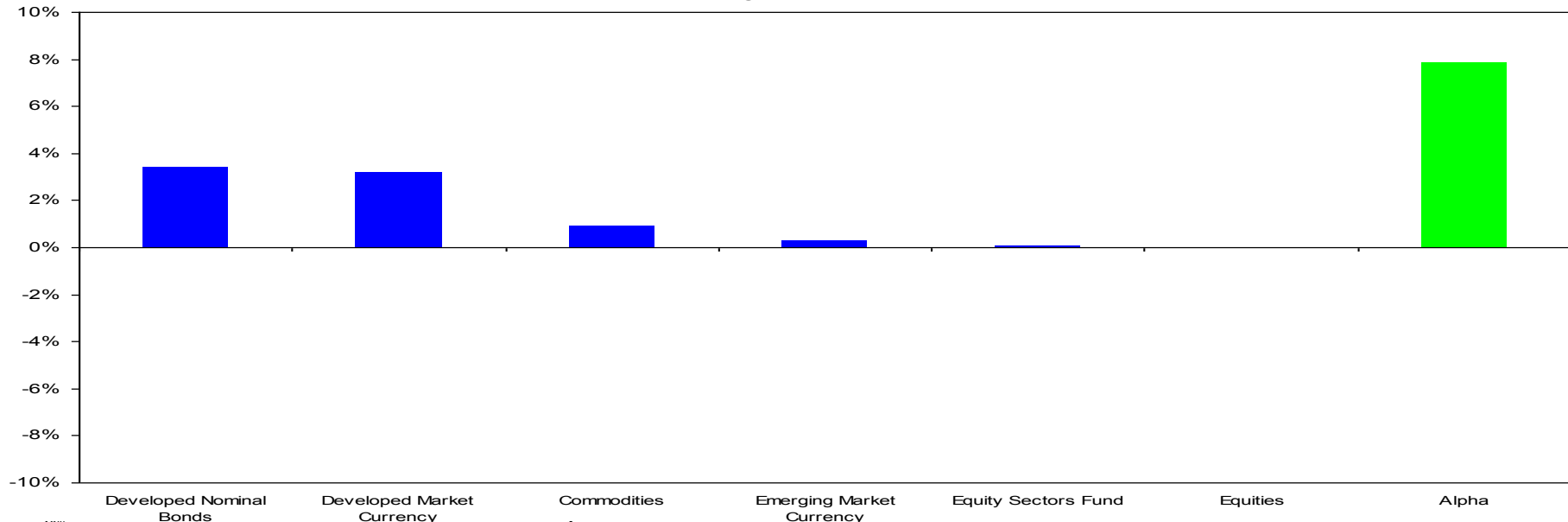
## Rolling Information Ratios Since Inception (December 31, 2003) – September 30, 2010



Note: Based on monthly, net of fee performance data, since inception

# Bridgewater – Performance Attribution/Alpha

1 Year Ending September 30, 2010

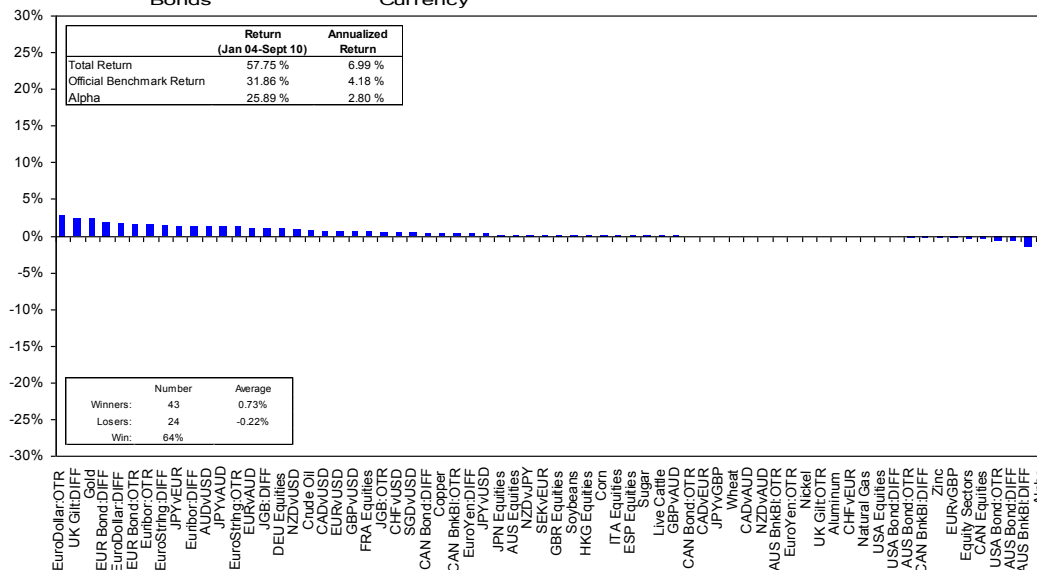
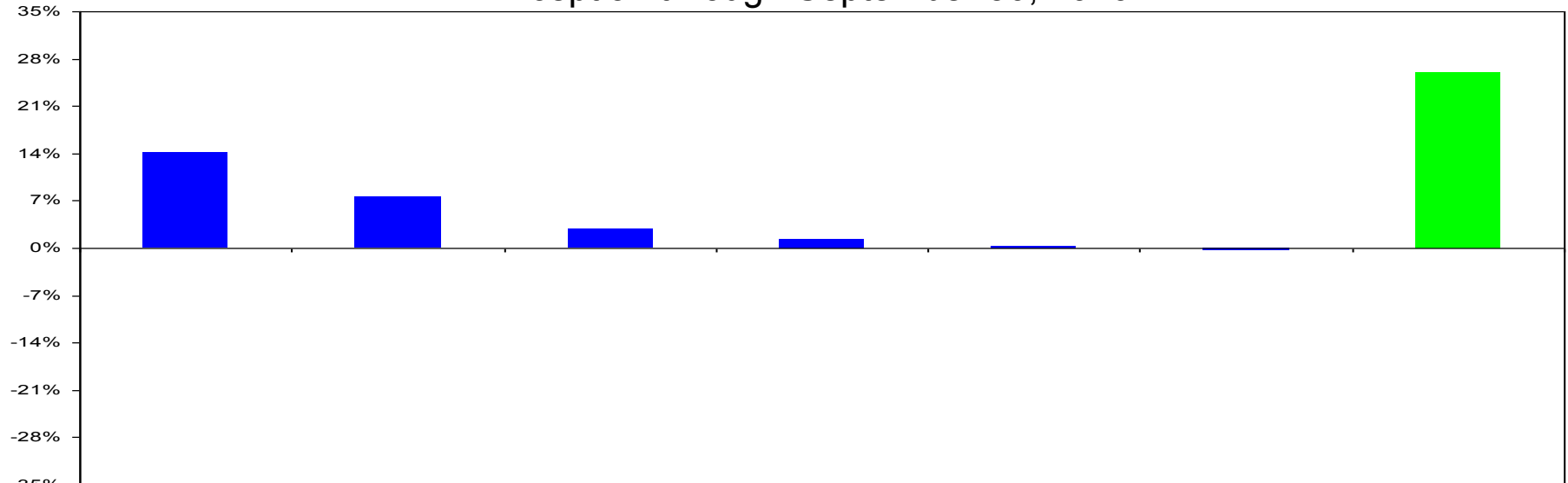


Source: Bridgewater  
One year ending September 30, 2010

Note: The attribution chart shown is based upon the gross of fees returns of the above-referenced account, as managed by Bridgewater. Performance is estimated for the periods referenced. Where shown, gross of fees returns will be reduced by the investment advisory fees and any other expenses that may be incurred in the management of the account or investment. Attribution is based on Bridgewater analysis. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of Bridgewater Associates, LP.

# Bridgewater – Performance Attribution/Alpha

Inception through September 30, 2010

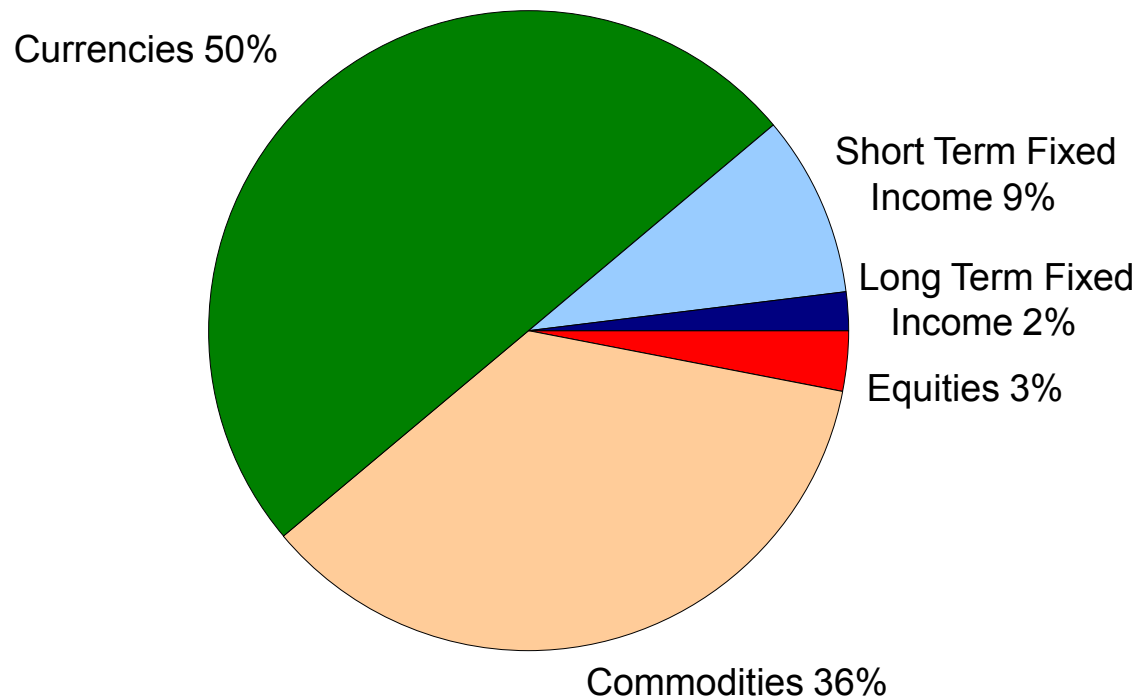


Source: Bridgewater  
Inception through September 30, 2010

Note: The attribution chart shown is based upon the gross of fees returns of the above-referenced account, as managed by Bridgewater. Performance is estimated for the periods referenced. Where shown, gross of fees returns will be reduced by the investment advisory fees and any other expenses that may be incurred in the management of the account or investment. Attribution is based on Bridgewater analysis. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of Bridgewater Associates, LP.

# Bridgewater – Current Allocation of Active Risk

As of September 30, 2010



Note: Active risk allocation as of September 30, 2010. "Allocation of Active Risk" represents the allocation of active management risk across the markets shown. The calculation is based on proprietary, time-weighted correlation and volatility assumptions.

Source: Bridgewater Associates

# Bridgewater – Current Portfolio Positions

Strategy	Deviation from Benchmark
<b>Equity Country Selection:</b>	
Total Equities	2.7%
<b>Commodities:</b>	
Total Commodities	8.8%
<b>Foreign Currency:</b>	
Euro	-12.5%
Australia	8.1%
Japan	13.6%
Switzerland	5.1%
Other (4)	-0.8%
Total Foreign Currency	13.5%
<b>Fixed Income Strategy</b>	
	<b>Contribution to Duration</b>
<b>Long-term Country Selection:</b>	
Euroland	-0.2
United States	0.3
Australia	-0.1
Canada	0.0
Other (2)	0.1
Total Nominal Long Rates	0.1
<b>Short-term Country Selection:</b>	
United States	0.0
Euroland	1.0
Australia	0.1
Other (3)	0.0
Total Nominal Short Rates	1.1

Moderately bullish due to healthy corporate balance sheets, share buybacks, and stimulative monetary policy

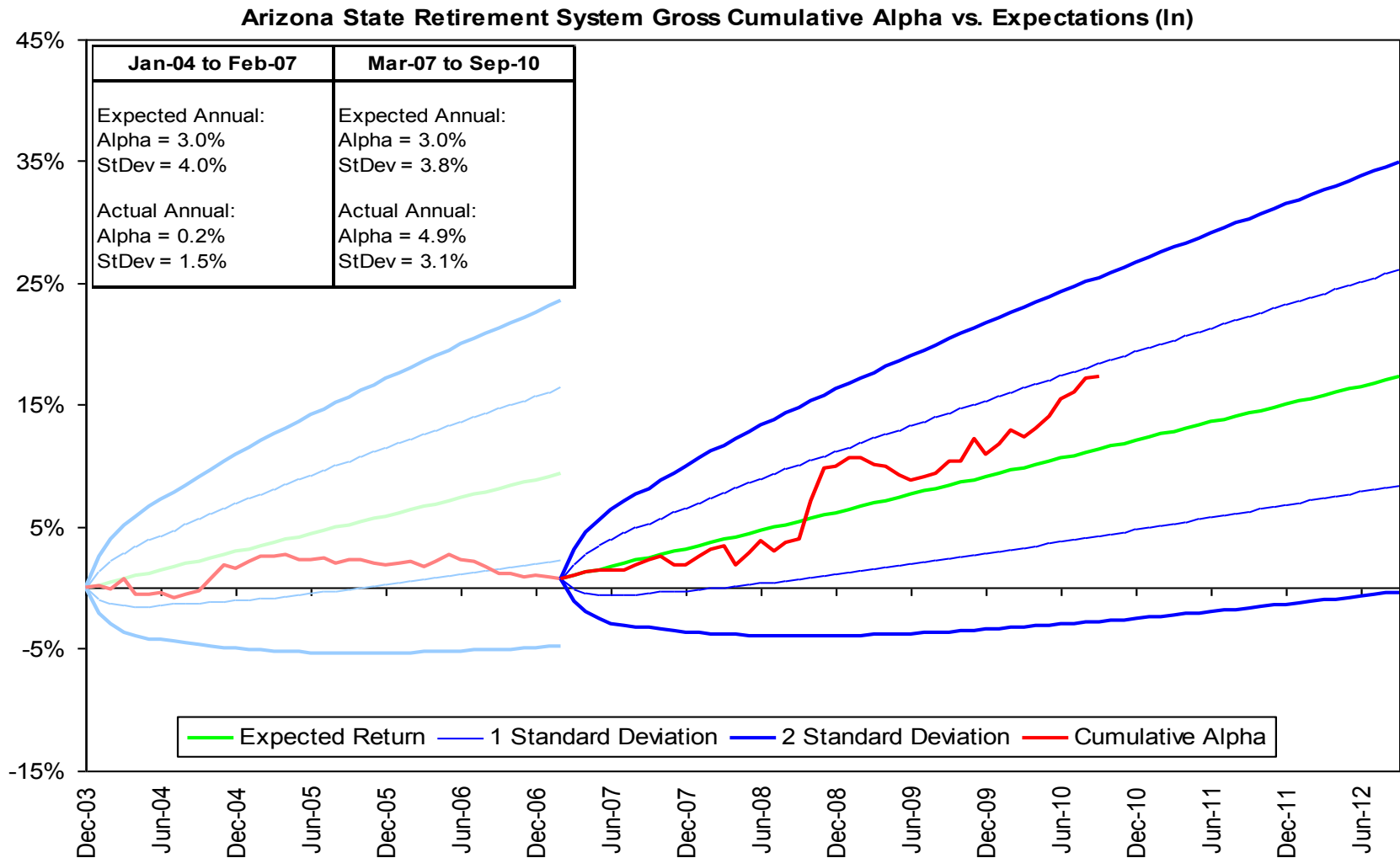
Bullish commodities in total, but gold in particular as a hedge to monetary inflation

The over-indebtedness the U.S. and Europe are a drag for their currencies; persistent income surpluses favor the yen; AUD is benefiting from commodity demand in Asia

More neutral on bond yields. At the short end, the tightening priced in for Europe seems the most unlikely

Note: Positions as of September 30, 2010. Foreign Currency "Other" includes, Canada, New Zealand, Sweden, and UK. Long-term fixed income "Other" includes, Japan and UK. Short-term fixed income "Other" includes, Canada, Japan, UK. Markets not shown may have a material impact on the performance of the account. Source: Bridgewater Associates

# Bridgewater – Performance vs. Expectations



Note: Effective March 2007, concurrent with an expansion of the account's leeway, the target tracking error of the mandate was decreased from 4.00% to 3.75%. Performance shown is based upon the returns of the account or investment referenced, as managed by Bridgewater. Where shown, gross of fees returns will be reduced by the investment advisory fees and any other expenses that may be incurred in the management of the account or investment. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

Source: Bridgewater Associates

# QS Investors – Portfolio Profile

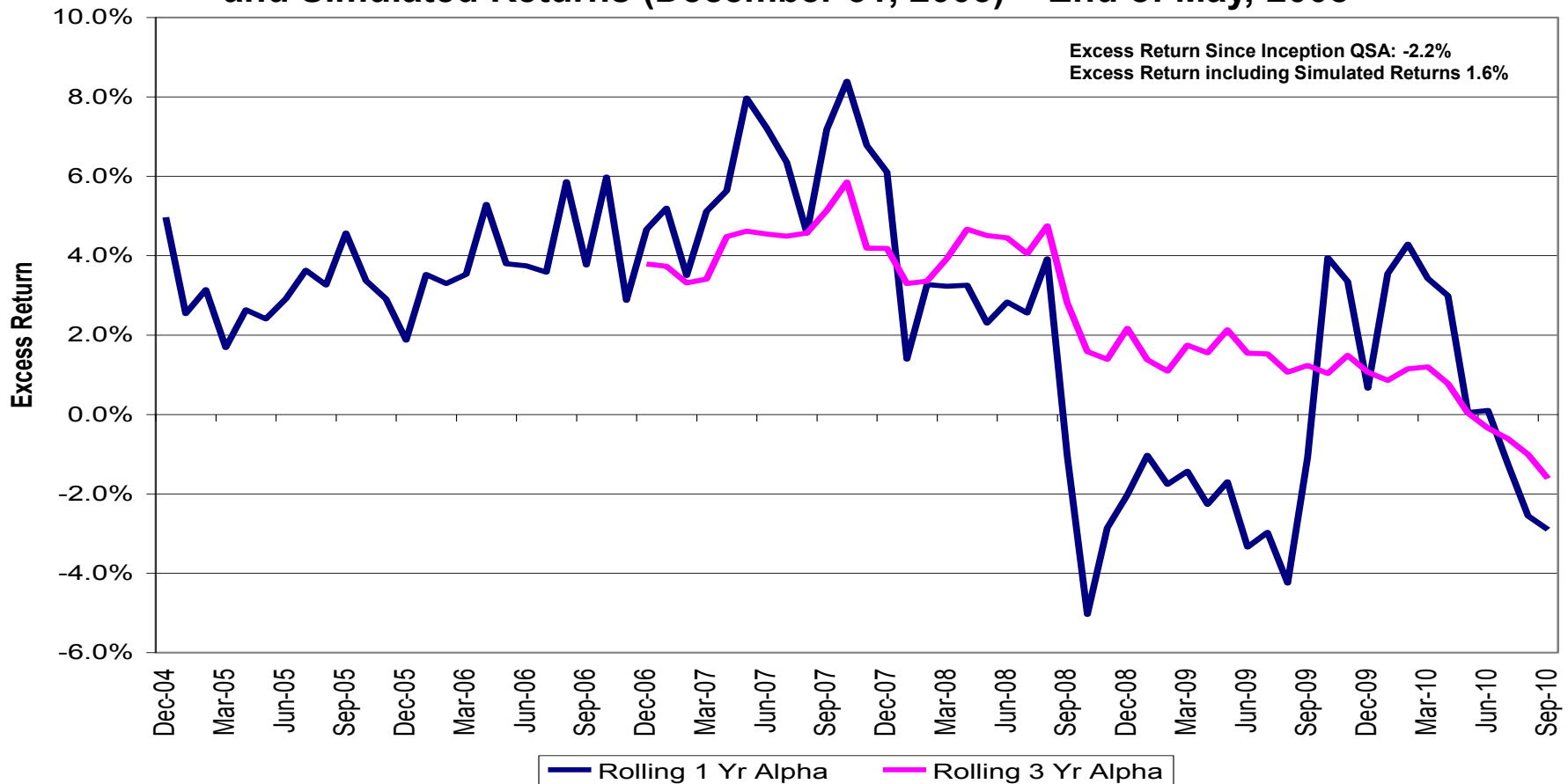
Portfolio Size	\$446.0 Million
Expected Excess Return	3.00%
Expected Tracking Error (Active Risk)	3.75%
Expected Information Ratio	0.80
Fees	57bps
Portfolio Structure	Derivatives – 1% Physical Securities – 90% Cash – 9%
Investment Process	Quantitative / Qualitative Blend
QS Investors believes that no one approach to GTAA management is optimal, and that a diversified approach capturing the strengths of a range of styles and avoiding the risks associated with style dependence is preferable. Accordingly, QS's iGAP strategy blends a range of different approaches.	

•Note: Information as of September 30, 2010

# QS Investors – Excess Return

## QS Investors vs. ASRS GTAA Index<sup>1</sup>

**Excess Returns Since Inception (May 31, 2008) – September 30, 2010  
and Simulated Returns (December 31, 2003) – End of May, 2008<sup>2</sup>**



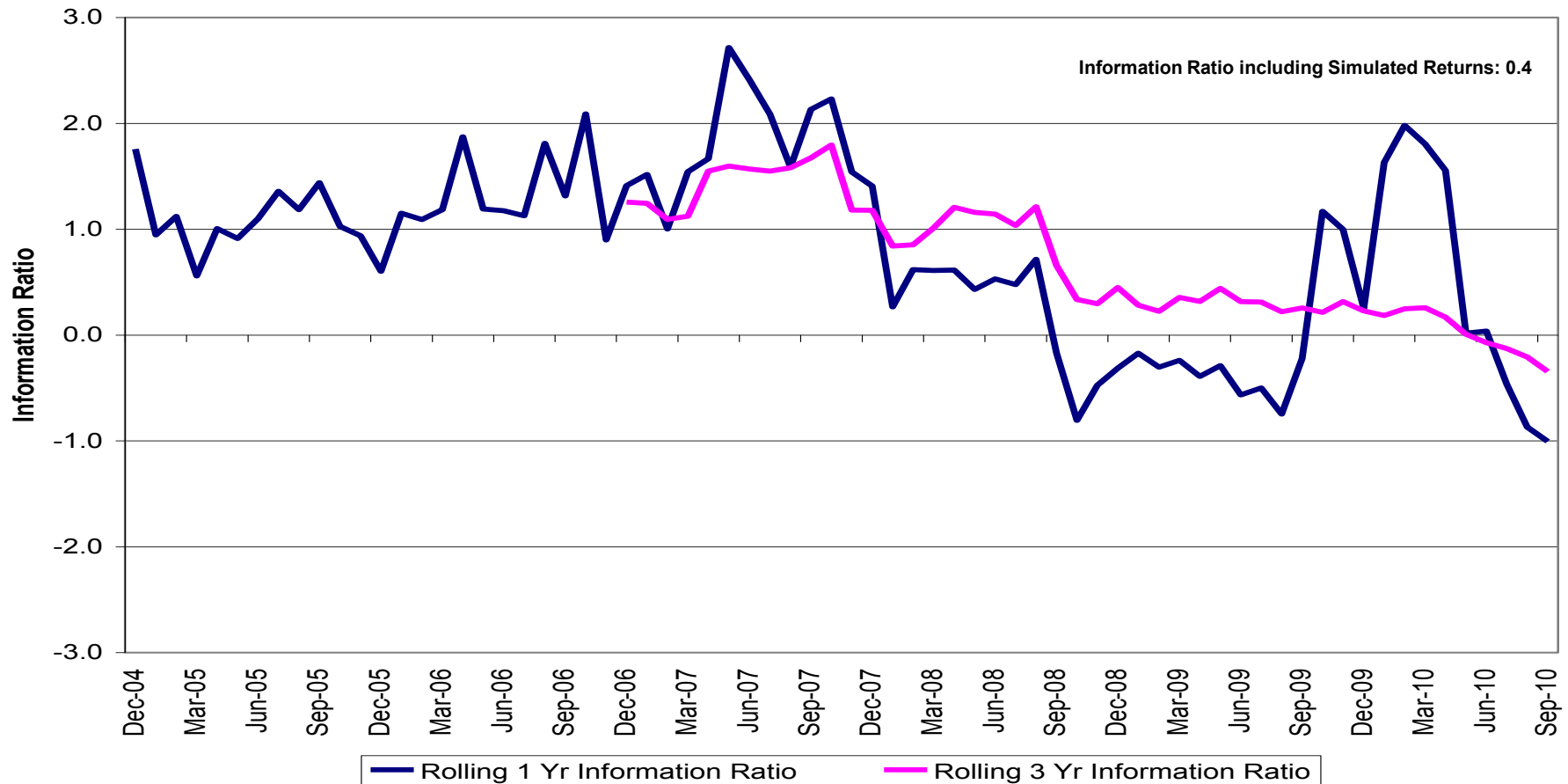
<sup>1</sup>ASRS GTAA Index comprised of 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

<sup>2</sup>Based on monthly, net of fee performance data. Performance shown is a blend of the actual ASRS portfolio results (June, 2008 – present) and a simulation of portfolio results (January 2004 – May 2008) using ASRS GTAA guidelines. Simulation data (gross of fees) are provided by QS Investors.

# QS Investors – Information Ratio

## QS Investors

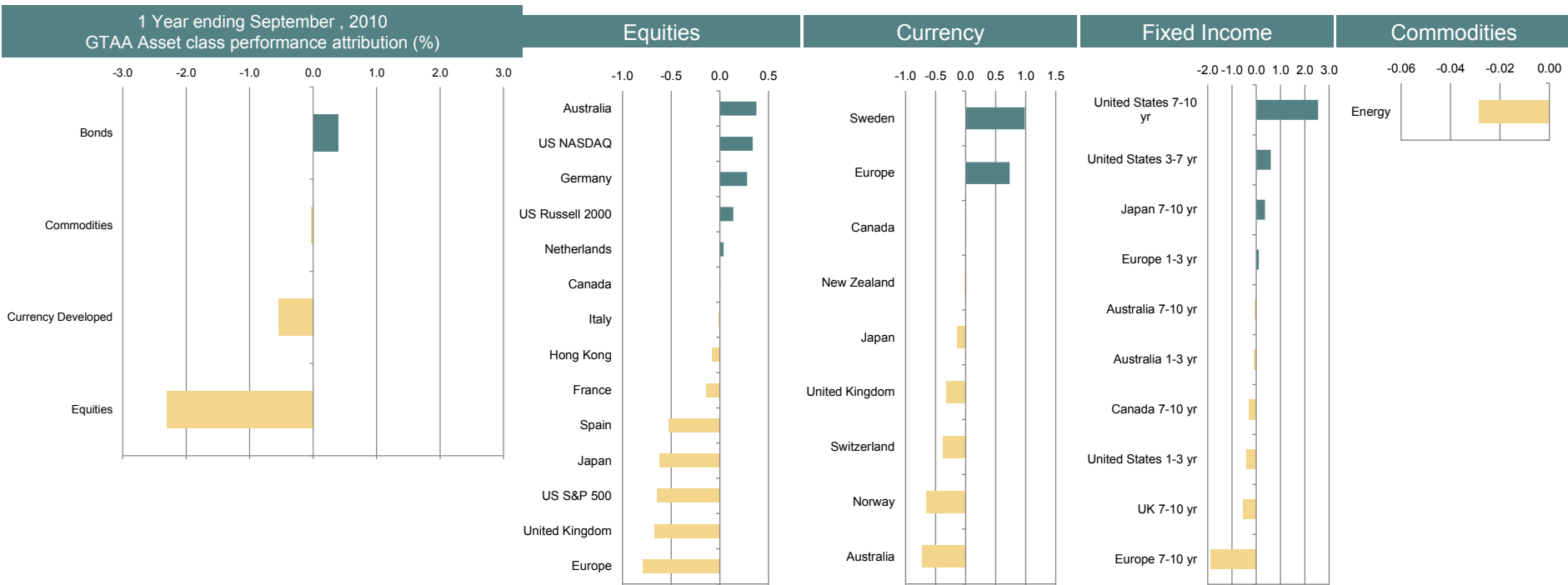
**Rolling Information Ratios Since Inception (May 31, 2008) – September 30, 2010  
and Simulated Returns (December 31, 2003) – End of May, 2008<sup>2</sup>**



<sup>2</sup>Based on monthly, net of fee performance data. Performance shown is a blend of the actual ASRS portfolio results (June, 2008 – present) and a simulation of portfolio results (January 2004 – May 2008) using ASRS GTAA guidelines. Simulation data (gross of fees) are provided by QS Investors.

# QS Investors – Performance Attribution

1 Year Ending September 30, 2010



Source: QS Investors

One year ending September 30, 2010

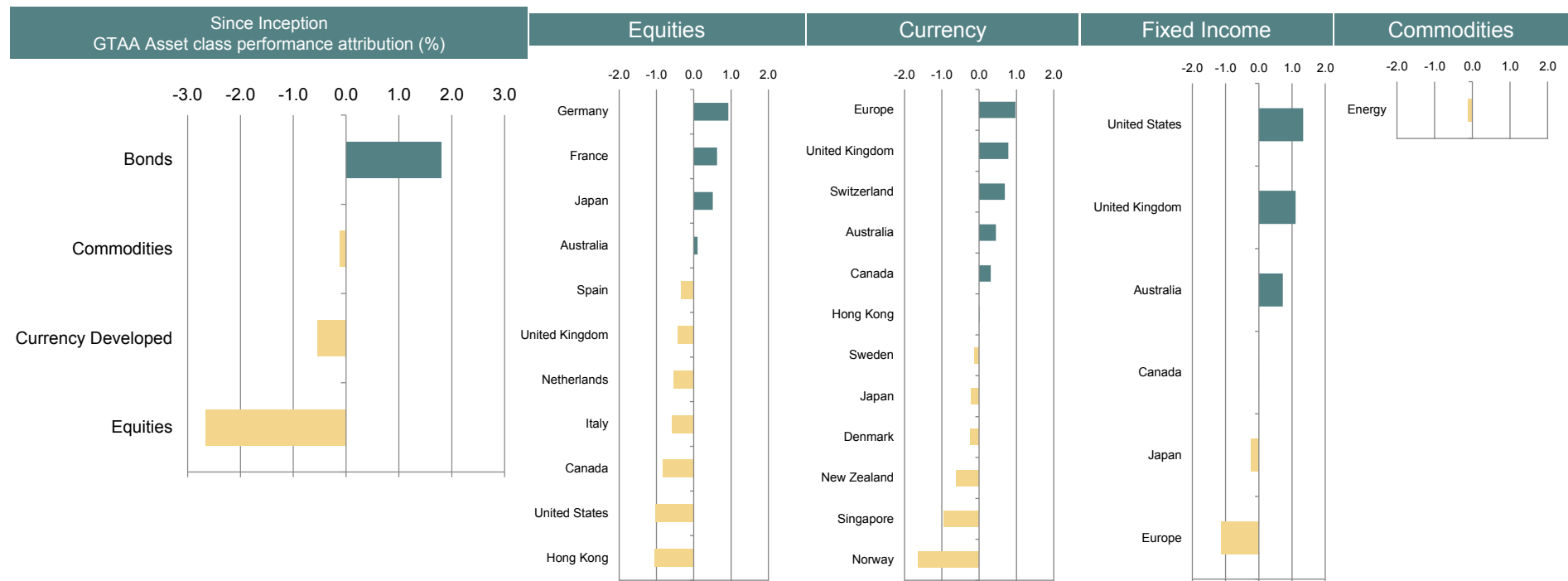
\*Blended benchmark: 56% S&P 500 Total Return Index, 28% Barclay's Capital Aggregate Index and 16% MSCI EAFE Index (unhedged, measured in USD).

The following performance attribution has been provided for the sole benefit of Arizona State Retirement System at their request. The report relates solely to performance attribution and does not constitute investment advice. The data being provided in this performance attribution summary accounts for the equity, fixed income and currency portions of the alpha overlay portfolio and does not include leveraging. Prices represent approximations based upon market relationships and evaluation formulae calculated by the performance team and are not necessarily the prices at which securities can be purchased or sold on any given day.

Past performance is not an indication of future results.

# QS Investors – Performance Attribution

Inception through September 2010



Source: QS Investors

Inception (7/08) through September 30, 2010

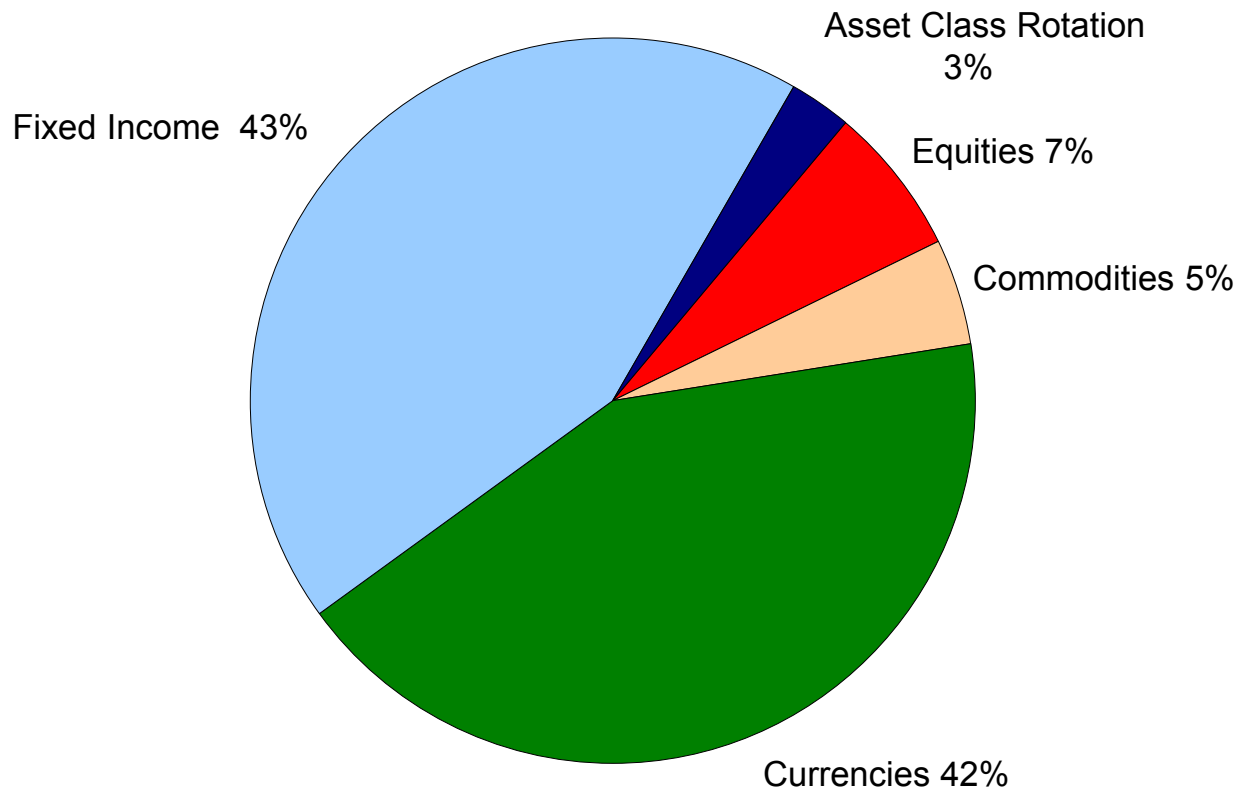
\*Blended benchmark: 56% S&P 500 Total Return Index, 28% Barclay's Capital Aggregate Index and 16% MSCI EAFE Index (unhedged, measured in USD).

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Past performance is not an indication of future results.

# QS Investors – Current Allocation of Active Risk

As of September 30, 2010



Note: Active risk allocation as of September 30, 2010.

Source: QS Investors

# QS Investors – Current Portfolio Positions

Strategy	Deviation from Benchmark
<b><u>Equity Country Selection:</u></b>	
United States	-1.7%
Germany	-2.2%
Other (9)	2.2%
<b>Total Equities</b>	<b>-1.7%</b>
<b><u>Commodities:</u></b>	
<b>Total Energy Commodities</b>	<b>1.7%</b>
<b><u>Foreign Currency:</u></b>	
Canada	5.7%
Euro	-7.1%
United Kingdom	-7.6%
Sweden	7.0%
Other (5)	1.0%
<b>Total Foreign Currency</b>	<b>-1.0%</b>
Fixed Income Strategy	Contribution to Duration
<b><u>Long-term Country Selection:</u></b>	
Euroland	-1.0%
United States	1.5%
Other (4)	-1.2%
<b>Total Nominal Long Rates</b>	<b>-0.7%</b>

Short US Russell 2000 as small cap companies struggling to grow, recent outperformance of mid-cap companies is exaggerated and relative valuation is high. Short overall European stocks compared to France and Germany due to higher relative economic growth.

Long crude oil compared to gas and heating oil based on cheaper valuation.

Long Sweden and Norway against the Euro as the economic fundamentals and capital flows support further appreciation of Scandinavian currencies. Short the UK Pound due to negative sentiment and expectations of a negative impact of fiscal austerity on the UK. Long Canada as its fiscal situation is better than the US, a relatively stronger banking sector and due to rising oil prices as Canada is a big producer.

Short Euro Bund (10Y) and long Euro Shatz (2Y) as our current environment (declining risk aversion, booming economy, increasing transparency in the European banking system) favors a steeper yield curve. Long U.S. 10Y bond driven by valuation (high real yields) and improving sentiment.

# **GTAA Manager Mercer Ratings/Reviews**

# ASRS GTAA Managers Mercer Ratings

Mercer ratings signify Mercer's opinion as to an investment strategy's prospect for outperforming a suitable benchmark, on a risk-adjusted basis, over a full market cycle.

Manager	Mercer Rating	Rating Date
Bridgewater Associates	A	10/19/10
QS Investors	A (W)	10/19/10

“A” Rated Strategies are assessed as having above average prospects.

“B” Rated Strategies are assessed as having average prospects.

“C” Rated Strategies are assessed as having below average prospects.

“(P)” Provisional Rating – Mercer to revisit, potential rating change.

“(W)” indicates that there is potential for re-assessment due to uncertainty surrounding the strategy but the risk of this is considered low.

# Bridgewater Associates – Mercer Manager Review

Bridgewater Associates – Global TAA – Global Tactical Asset Allocation		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	++	<p>We rate this strategy highly. In our view, the key strengths lie in the depth and rigour of the research effort that has gone into the development of the firm's system and the regular ongoing research conducted by the research team. Bridgewater boasts a very stable and experienced team. The portfolio construction process incorporates a robust risk control framework and execution is thoroughly monitored with a sole purpose of minimizing transaction costs.</p> <p>In general, Bridgewater's process tends to place more emphasis on bond market and currency selection decisions and less emphasis on equity market decisions and equity/bond/cash decisions than most of the firm's main competitors in this field. Therefore mandates that provide the manager with substantial scope to take bond market and currency selection decisions, including emerging markets, will gain the greatest benefit from this strategy.</p>
Portfolio Construction	++	
Implementation	+	
Business Management	++	
<b>Overall Rating</b>	<b>A</b>	
Rating Date	10/19/2010	

# QS Investors – Mercer Manager Review

QS Investors – Global TAA - integrated Global Alpha Platform (iGAP)		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	++	<p>The iGAP strategy has at its core an impressive process and set of systems for combining isolated views from different alpha teams. Most recently the team has enhanced its systems such that value of the views on each subcomponent of a GTAA portfolio (e.g. inter-country bonds) can be assessed. Risk controls are sensible and the team will override the models to reduce risk in extreme events.</p> <p>The fact that the product does not rely heavily on any one individual has allowed it to withstand turnover in individuals and alpha teams since then. That said there has been sufficient continuity since 2004 to make us comfortable and we feel that Janet Campagna has been successful in fitting individuals to appropriate roles in the team.</p>
Portfolio Construction	++	
Implementation	++	
Business Management	=	
<b>Overall Rating</b>	<b>A (W)</b>	
Rating Date	10/19/2010	

# **Review of GTAA Market Environment**

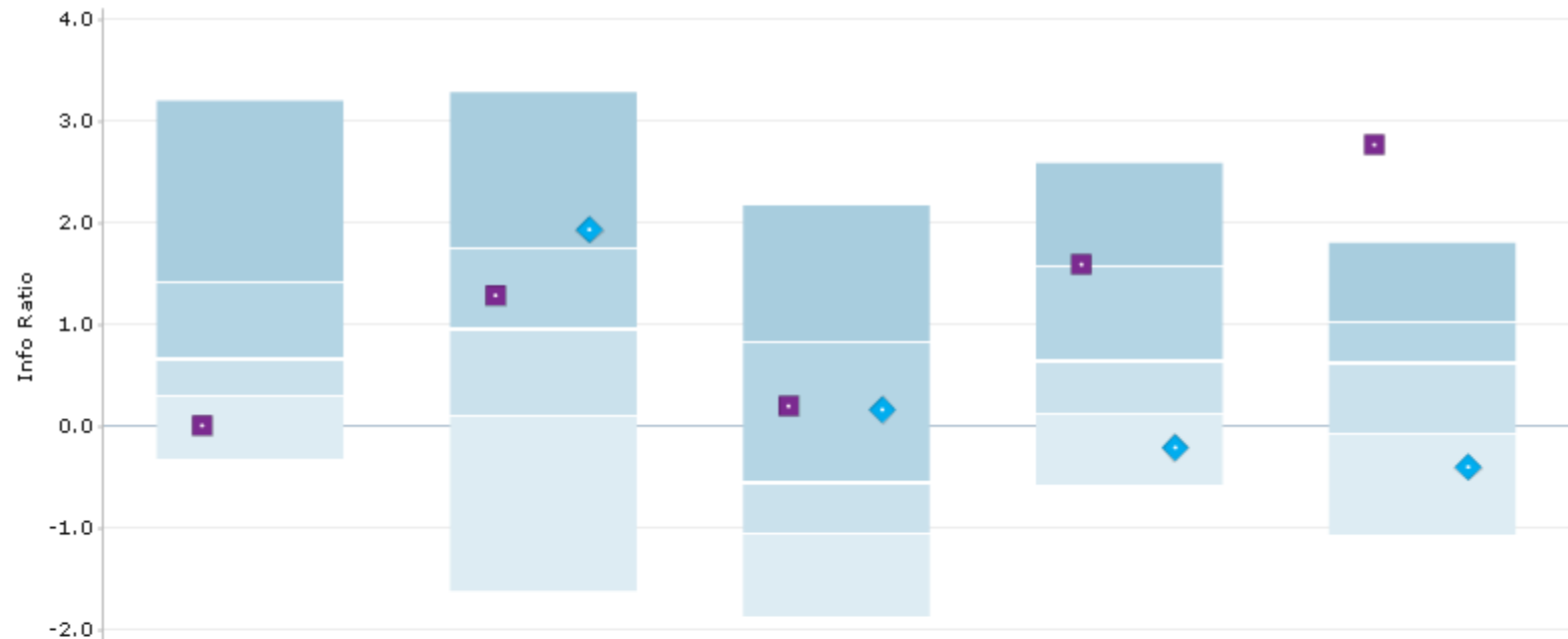
# Review of Market Conditions for GTAA Strategies

- The median GTAA manager added value in the one year period ending in September 2010.
- The median manager returned 0.6 times their target risk (i.e. 1.2% for a 2% risk program); the comparable figure for September 2009 was 0.7, but for September 2008 it was minus 0.6.
- Managers with correct insights into the fixed income markets have done particularly well since 2008.
- Many managers have expanded their coverage of emerging markets.
- Some managers have looked at opportunities in volatility (options) or credit trading, although the opportunity set is limited by liquidity.
- We see interest in GTAA/Global Macro strategies as an absolute return or 'pure alpha' strategy.
- Increased interest from smaller institutions and DC plans bodes well for the profitability of Macro oriented firms.

# Comparison to the GTAA/Global Macro Universe

## Year by Year Returns of Bridgewater and QS Investors Unconstrained Programs

Information Ratio vs. Zero Benchmark in \$US (before fees) over 5 Annual Rolling Periods ending September-10 (monthly calculations).  
Comparison with the Global TAA - Excess Returns universe (percentile ranking).



	1 Year to Sep 2006	1 Year to Sep 2007	1 Year to Sep 2008	1 Year to Sep 2009	1 Year to Sep 2010
■ BridgeW GTAA	0.0 (83)	1.3 (35)	0.2 (38)	1.6 (19)	2.8 (0)
◆ QS iGap XS	-	1.9 (21)	0.2 (38)	-0.2 (85)	-0.4 (86)
5th Percentile	3.2	3.3	2.2	2.6	1.8
Upper Quartile	1.4	1.8	0.8	1.6	1.0
Median	0.7	1.0	-0.6	0.7	0.6
Lower Quartile	0.3	0.1	-1.1	0.1	-0.1
95th Percentile	-0.3	-1.6	-1.9	-0.6	-1.1
Number	37	38	41	37	15